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09/379,481	08/23/1999	MICHAEL BENJE	2734 MEINKE	1331

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EXAMINER
LEUNG, JENNIFER A

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1764	4

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/379,481	BENJE, MICHAEL	
	Examiner	Art Unit	
	Jennifer A. Leung	1764	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-12 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1-12 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on 23 August 1999 is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☒ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
4) ☐ Interview Summary (PTO-413) Paper No(s) _____
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other

DETAILED ACTION

Priority

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Drawings

2. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the following must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

a. In Claim 1, "a quench"

b. In Claim 9, "a cleaning means"

3. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference sign(s) not mentioned in the description: **1**α in Fig. 2. A proposed drawing correction, corrected drawings, or amendment to the specification to add the reference sign(s) in the description, are required in reply to the Office action to avoid abandonment of the application.

Furthermore, reference characters used in the drawings must be plain and legible.

A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

The drawings have not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the drawings.

Specification

4. The disclosure is objected to because of the following informalities:

a. Page 6, line 19: -- or baseplate-- should be inserted after "a dome plate" for consistency in terminology (note page 4, line 20 and claims).

b. Page 7, line 5: --or bypass stream-- should be inserted after "bypass line" for consistency in terminology (note page 3, line 14 and claims).

Appropriate correction is required.

The specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

Claim Objections

5. Claims 4-7 and 10-11 are objected to because of the following informalities. Appropriate correction is required.

a. In Claim 4, "said analysis" should be changed to --said analyzing-- for proper positive antecedent basis.

b. In Claim 6, "the plate" should be changed to --the baseplate-- for proper positive antecedent basis and consistency in the claims (note claim 5, line 4).

c. In Claim 7, --stream-- should be inserted after "bypass" (line 2) for consistency in the claims (note Claim 6, line 4). Also, --a-- should be inserted after "have" (line 2).

d. In Claim 10, "the oxychlorination" lacks positive antecedent basis.

e. In Claim 11, --filter-- should be inserted before "cartridges" for consistency in the claims (note Claim 1, line 3).

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. Claims 1-10 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In Claim 1, it is unclear as to what is intended by "passing reaction gas mixture to a quench", and where it is disclosed in the drawings.

Furthermore, "fine" is a relative term and therefore vague and indefinite.

In Claim 2, it is unclear as to the relationship of the "part-stream" and "bypass stream" to the removing step of claim 1, and where it is disclosed in the specification and drawings.

Furthermore, "form" is vague and indefinite. Furthermore, "the main stream" lacks positive antecedent basis.

Furthermore, it is unclear as to what is intended by "fine dust fraction" and where it is disclosed in the specification. Also, "fine" is a relative term and therefore vague and indefinite.

In Claim 3, it is unclear as to how "separate dome spaces" are structurally related to the "dome" of Claim 1.

Furthermore, it is unclear as to the structural limitation the applicant is attempting to recite by "the main stream and the bypass stream are removed from separate dome spaces", and where it is disclosed in the specification and drawings.

Furthermore, "the main stream" and "the bypass stream" lack positive antecedent basis.

In Claim 4, it is unclear as to what is intended by "the heat transfer" and "fluidization behavior", and where it is disclosed in the specification and drawings. Furthermore, "the bypass stream", "the heat transfer" and "the fluidization behavior" lack positive antecedent basis.

Furthermore, it is unclear as to how the catalyst is related to the other elements of the method, and where it is disclosed in the specification and drawings.

In Claim 5, it is unclear as to what is intended by "the filter cartridges are dippable", and where it is disclosed in the drawings.

Furthermore, it is unclear as to the structural relationship between the "filter cartridges" and the "at least one baseplate".

Furthermore, it is unclear as to the structural relationship between the "filter cartridges in a dome"(lines 4-5) and the "filter cartridges... into an upper region" (lines 5-6), and where it is disclosed in the specification and drawings.

Furthermore, it is unclear as to what defines "an upper region", and where it is disclosed in the specification and drawings.

Furthermore, the "fluidized bed" lacks positive antecedent basis.

In Claim 6, it is unclear as to what structural limitation the applicant is attempting to recite by "above the plate carrying the filter cartridges on its lower surface".

Furthermore, it is unclear as to what structural limitation the applicant is attempting to recite by "each having an outlet for a main stream to the quench and a bypass stream", and where it is disclosed in the specification and drawings.

Furthermore, the "dome space" lacks positive antecedent basis.

In Claim 7, it is unclear as to how "the filter elements" are related to the elements of the claimed apparatus in claims 5 and 6, and where it is disclosed in the specification and drawings. Furthermore, "the filter elements", "the controlled passage", and "fine dust fractions" lack positive antecedent basis. Also, "fine" is a relative term and therefore vague and indefinite.

Furthermore, it is unclear as to what is intended by "filter elements coordinated with the bypass", and where it is disclosed in the drawings.

Furthermore, it is unclear as to the relationship between "the fine dust filter cartridges" and "the filter elements", and where it is disclosed in the specification and drawings. Furthermore, "the fine dust filter cartridges" lacks positive antecedent basis.

In Claim 8, it is unclear as to how the "filter elements allowing through fine dust" and "filter cartridges retaining the fine dust" are related to the "filter cartridges" of claim 5. Furthermore, "filter elements"(line 3), and "the fine dust" (line 3) lack positive antecedent basis.

In Claim 9, it is unclear as to the cleaning means and function and where it is disclosed in the specification and drawings.

In Claim 10, it is unclear as to what the applicant is attempting to recite in "the oxychlorination of ethylene" and how it is related to the fine dust removal process in claim 1.

Furthermore, "primarily" is considered vague and indefinite.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. Claim 5 is rejected under 35 U.S.C. 102(b) as being clearly anticipated by Degnen et al. (U.S. 2,548,875).

Degnen et al. teach a fluidized bed reactor using catalyst granules subjected to abrasion, said reactor comprising at least one base plate **9** having filter cartridges **8** in a dome of the reactor **1**, wherein the filter cartridges **8** are dippable (column 5, lines 44-51) into the upper region (FIG. 1) of the fluidized bed **4**. Instant claim 5 reads structurally on the apparatus of Degnen et al.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

8. Claim 1 is rejected under 35 U.S.C. 103(a) as being unpatentable over Degnen et al. (U.S. 2,548,875) in view of Raterman (U.S. 5,198,397).

The same comments with respect to Degnen apply. Furthermore, Degnen teaches a process for removing fine dust from the fluidized bed reactor **1** via filter cartridges **8** and passing the reaction gas mixture from the dome of the reactor **3**, **21**. However, Degnen is silent as to passing the reaction gas mixture to a quench from the dome.

Raterman teaches a process for removing fine dust from a fluidized be reactor and passing a reaction gas mixture to a quench **225** from a dome of the reactor (Fig. 2).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to apply the quench of Raterman to the process of Degnen because Raterman teaches providing a quench may prevent dangerous temperature excursions if afterburning should occur.

9. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Degnen et al. (U.S. 2,548,875) in view of Raterman (U.S. 5,198,397), as applied to claim 1 above, and further in view of Cheng (U.S. 4,306,888).

The same comments with respect to Degnen and Raterman apply. However, Degnen and Raterman are silent as to a process where a main stream and a bypass stream are removed from separate dome spaces of the reactor.

Cheng teaches the process where a main stream **64** and a bypass stream **56**, **58** are removed from separate dome spaces **46**, **48**.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to apply the process of Cheng to the process of Degnen because by removing the streams from separate dome spaces, one stream and its corresponding filter can be closed off for cleaning while the other stream and its corresponding filter remains open, so that at least one filter is in operation at all times.

10. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Degnen et al. (U.S. 2,548,875) in view of Raterman (U.S. 5,198,397), as applied to claim 1 above, and further in view of Cheng (U.S. 4,306,888) and Smith (U.S. 5,314,616).

The same comments with respect to Degnen and Raterman apply. Furthermore, the same comments with respect to Cheng as applied to claim 3 above apply. However, Degnen, Raterman, and Cheng are silent as to the bypass stream having a predetermined find dust fraction below a predetermined particle size.

Smith teaches a process removing a part-stream from a filter system, where the part-stream in the form of a bypass stream filters smaller particle sizes than the main stream.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to apply the process of Smith to the modified process of Degnen because in order to filter out a larger range of contaminant particle sizes.

11. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Degnen et al. (U.S. 2,548,875) in view of Raterman (U.S. 5,198,397), as applied to claim 1 above, and further in view of Daw et al. (U.S. 5,435,972).

The same comments with respect to Degnen and Raterman apply. However, Degnen and Raterman are silent as to a process of analyzing a catalyst sample and/or a change in the heat transfer and/or a deterioration of the fluidization behavior and switching on or off the bypass stream according to the analysis.

Daw et al. teach analyzing the deterioration of the fluidization behavior and using a controller **38** to adjust process conditions via control of a valve based on the analysis (column 4, lines 34-37).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to apply the analysis and control method of Daw to the modified process of Degnen

because Daw teaches that analyzing and controlling process conditions of a fluidized bed helps maintain desired operating conditions, thereby improving reaction yield.

12. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Degnen et al. (U.S. 2,548,875) in view of Raterman (U.S. 5,198,397) and Cheng (U.S. 4,306,888).

The same comments with respect to Degnen and Raterman apply. Furthermore, Degnen discloses that the base plate **9** carries the filter cartridges **8** on its lower surface (Figure 1). However, Degnen and Raterman are silent as to an apparatus where the dome space is divided into at least two chambers, each having an outlet for a main stream and a bypass stream.

Cheng teaches an apparatus where the dome space is divided by partition **44**, above the plate 34 carrying the filter cartridges, into at least two chambers **46**, **48**, each having an outlet for a main stream **64** and a bypass stream **56**, **58**.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to divide the dome space in the modified apparatus of Degnen into separate dome spaces and to provide outlets for a main stream and bypass stream to each space because Cheng teaches that the separate chambers allows one stream and its corresponding filter can be closed off for cleaning while the other stream and its corresponding filter remains open, so that at least one filter is in operation at all times.

13. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Degnen et al. (U.S. 2,548,875) in view of Raterman (U.S. 5,198,397) and Cheng (U.S. 4,306,888), as applied to claims 5 and 6 above, and further in view of Smith (U.S. 5,314,616).

The same comments with respect to Degnen, Raterman, and Cheng apply. Furthermore, Degnen, Raterman, and Cheng are silent as to whether the filter elements coordinated with the

bypass stream chamber have a pore size differing from that of the filter cartridges of the main stream chamber, for the controlled passage of fine dust fractions. However, Degnen teaches that the porous membrane of the filters may be provided by a plurality of vertical cylinders in order to obtain a desired porosity (column 5, lines 43-48).

Smith teaches a fluid filter system comprising a main filter and an auxiliary bypass filter, where the auxiliary filter is adapted to filter smaller particle sizes (column 2, lines 27-36) and the main filter is adapted to filter and retain larger particles (Abstract). Provisions are also made for controlling the fluid flow through the auxiliary filter depending on predetermined conditions (column 2, lines 45-47).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to control the passage of particles in the bypass stream versus the main stream as taught by Smith by adjusting the pore size of the filter cartridges of Degnen because the different pore sizes for bypass versus main stream allow filtering of smaller particles in the bypass while maintaining adequate fluid flow in the larger particle filtering main stream.

14. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Degnen et al. (U.S. 2,548,875) in view of Smith (U.S. 5,314,616).

The same comments with respect to Degnen and Smith apply. Degnen further discloses that the filters may be employed in whatever number and size necessary to provide the required filter surface and may be mounted in the contact chamber in any suitable manner (column 5, lines 51-55). However, Degnen is silent as to a ratio of filter elements allowing through fine dust to filter cartridges retaining the fine dust of 1:9.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to maintain the ratio of filter elements allowing through fine dust to filter cartridges retaining the fine dust at approximately 1:9 since it has been held that changes in proportion are obvious, *In re Fields 134 USPQ 242 (CCPA1962); In re Reese 129 USPQ402 (CCPA 1961)*, and where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art, *In re Aller, 105 USPQ 233*.

15. Claims 9 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Degnen et al (U.S. 2,548,875) in view of Shah (U.S. 4,328,353).

With respect to claim 9, the same comments with respect to Degnen apply. Furthermore, Degnen is silent as to a cleaning means using compressed gas pulsed on the baseplate. However, Degnen discloses a disadvantage of filters is that they must be cleared periodically using a reverse flow of gas (column 3, lines 27-30).

Shah teaches a cleaning means using compressed gas in reverse flow, pulsed on the baseplate **32** in order to periodically remove solids on the filter surface (column 6, lines 21-30).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the cleaning means to the modified apparatus of Degnen because the cleaning means removes the finely divided solids that become caked on the filter surface, as taught by Shah.

With respect to claim 12, the same comments with respect to Degnen apply. Furthermore, Degnen is silent as to the use of sintered metal filter cartridges. However, Degnen discloses the use of porous metal filters (column 5, lines 54-56).

Shah teaches the use of sintered metal filter cartridges **14**, **31** to remove a powder contained in a gaseous product (column 4, lines 51-54).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to substitute the sintered metal filter cartridges for the porous metal filter cartridges of Degnen because the sintered metal filter cartridges are effective for screening out powder while allowing the flow of clean gas mixture, as taught by Shah.

16. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Degnen et al. (U.S. 2,548,875) in view of Raterman (U.S. 5,198,397), as applied to claim 1 above, and further in view of Tsao (U.S. 4,243,650).

The same comments with respect to Degnen and Raterman apply. Furthermore, Degnen and Raterman are silent as the process being used primarily for the oxychlorination of ethylene. However, Degnen discloses that the invention includes within its scope the separation of gases from finely divided solids without reference to the previous condition or relation of the solids and gas (column 1, lines 23-37).

Tsao discloses that the oxychlorination of ethylene produces solid salt particles in the effluent of a fluidized bed reactor that require a particle removal and recovery process, such as filtration (column 1, lines 25-35 and column 3, lines 42-46).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to primarily apply the oxychlorination of ethylene to the modified process of Degnen et al. because the oxychlorination of ethylene is conducted in a fluidized bed reactor comprising means for removal and recovery of fine dust or solid particles, as taught by Tsao.

17. Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Degnen et al (U.S. 2,548,875) in view of Raterman (U.S. 5,198,397) and Tsao (U.S. 4,243,650), as applied to claims 1 and 10 above, and further in view of Shah (U.S. 4,328,353).

The same comments with respect to Degnen, Raterman, and Tsao apply. Furthermore, Degnen, Raterman, and Tsao are silent as to the use of sintered metal filter cartridges. However, Degnen discloses the use of porous metal filters (column 5, lines 54-56).

The same comments with respect to Shah apply.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure: Cowfer et al., Miller et al., Young et al. and Haldipur et al. are provided to illustrate current state of the art.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jennifer A. Leung whose telephone number is 703-305-4951. The examiner can normally be reached on 8:30 am - 5:30 pm M-F, every other Friday off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Marian C. Knode can be reached on 703-308-4311. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9310 for regular communications and 703-872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661.

JAL
May 16, 2002

Hien Tran

HIEN TRAN
PRIMARY EXAMINER